

REMARKS

Claims 1-22, 24-39 and 43-46 are pending for examination with claims 1, 16, 27, 34, 37, 43 and 45 being independent claims. No new matter has been added.

Finality of the Office Action

Applicant respectfully traverses the finality of the Office Action mailed July 6, 2004. Under M.P.E.P. § 706.07(a), an Action should not be made final if it "includes a rejection, on newly cited art, other than information submitted in an information disclosure statement filed under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p), of any claim not amended by applicant or patent owner in spite of the fact that other claims may have been amended to require newly cited art. Here, claims 2, 8, 10-12, 15, 20-22, 24, 29, and 31 were not amended but were rejected under a newly cited reference, Van Overveld, which was not submitted in an information disclosure statement by the Applicant. Accordingly, the finality of the present Office Action is improper and Applicant respectfully requests that the finality be withdrawn.

Rejections of the Claims

Initially, the undersigned wishes to thank Examiner Yang for the courtesies extended in granting and conducting a telephone interview on July 30, 2004. The Examiner declined to substantively review the rejections during the interview, and suggested that Applicant submit arguments in written form. The substance of the telephone interview briefly introduced the arguments discussed more fully below.

Rejections under 35 U.S.C. § 103

Claims 1, 3-7, 9, 16-17, 19, 27-28, 30, 34-35, 43, and 45 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,616,079 to Iwase et al. [hereinafter Iwase]. Applicant respectfully traverses the rejection as follows.

Iwase is directed to a 3-dimensional game machine which can form pseudo-3-dimensional images in real time. (See Iwase, Abstract). Initially, Iwase determines a single line-of-sight angle of the player. (See Iwase, Col. 10, lines 38-42). More specifically, the line-of sight of the player is the vehicle's direction, or for head-mounted displays, the line-of-sight is detected by spatial sensors. (See Iwase, Col. 5, lines 36-45). In either case, the determination of the line-of-sight in Iwase is constant for all objects within a single display frame, e.g., for each display frame, there is only one

line-of-sight determined. (See Iwase, Col. 10, lines 15-21). For a given line-of-sight, Iwase then determines the field-of-view, or visual field, of the display and clips those images that are beyond the field-of-view of the player. (See Iwase, Col. 10, lines 43-51 and Figure 7). In other words, the line-of-sight is the perspective viewing direction of the entire display, and the field-of-view determines which objects can be seen at that perspective viewing angle. For the display within the determined field-of-view for a given line-of-sight, Iwase divides the map of the game space into segments based on a segment pattern. For each display segment, Iwase generates geometrical images of differing resolution based upon the range of the segment from the position of the player vehicle. (See Iwase, Col. 2, lines 37-57 and Col. 3, lines 18-21). In this manner, the objects within a close range are rendered with a high resolution, and correspondingly, those objects at a far range are rendered at a lower resolution. (See Iwase, Col. 3, lines 18-21 and Col. 5, lines 59-67). Thus, Iwase discloses displaying a plurality of objects within a single field-of-view at differing resolution and detail, each object having the same line-of-sight viewing angle. In other words, the ultimate result of Iwase is to take a single line-of-sight and generate details of the displayed objects based on range to reduce detail in the overall display and ultimately reduce processing time of the display.

Independent Claim 1

Claim 1 recites, *inter alia*, a computer-readable medium having stored thereon a tile data structure for a tile representing an image texture for tiled texture mapping, comprising plural tile data structures. Iwase neither discloses nor suggests any type of texture mapping on any surface of any object. However, the Examiner suggests that Iwase "discloses an image rendering unit, and as it is well known in the art that an image rendering device is used to render color or shading of an image, it is obvious that the image rendered is a texture image." Applicant disagrees with the conclusion that Iwase suggests rendering an image with texture. Mere suggestion of a generic image rendering unit does not teach or suggest applying a texture map to a rendered image.

In the interview, the Examiner appeared to imply that it would have been obvious to modify Iwase to add texture mapping capabilities to Iwase since Iwase discloses an image rendering engine. However, there is nothing in the prior art of record which would have motivated one skilled in the art to modify Iwase to render an image with texture.

More particularly, as noted above, Iwase is directed toward the ultimate problem of reducing the detail in the display to reduce processing time. In contrast, claim 1 is directed toward increasing object detail with adding a texture map to the object, which increases processing time. Accordingly, Iwase and Applicant's claim 1 are directed toward conflicting problems.

If the rejection of the claims as being obvious over Iwase is to be maintained, the Examiner is respectfully requested to cite a reference in support of his position as required in M.P.E.P. § 2144.03, or if the Examiner is relying upon facts within his personal knowledge, to file an affidavit establishing those facts pursuant to § 2144.03. As stated in that M.P.E.P. section, the reliance upon facts that are purportedly common knowledge or "well-known" should only be relied upon for facts that "fill the gaps" in the factual showing of obviousness and "should not comprise the principle evidence upon which rejection is based." Here, claim 1 is directed specifically toward texture tiles, which are also the basis for the Examiner's reliance on common knowledge. Accordingly, it appears that the Examiner is relying on common knowledge to reject the principle basis of claim 1, in direct contravention to the guidelines in M.P.E.P. § 2144.03. Thus, the motivation for modifying the Iwase image rendering engine to employ texture is without foundation in the prior art of record, which is respectfully believed to render the rejection improper under M.P.E.P. § 2144.03.

Assuming without agreeing that texture mapping may be combined with the line objects of Iwase, this combination does not render Applicant's claim 1 obvious. Specifically, claim 1 recites, *inter alia*, plural tile data structures representing plural respective views of the image texture displayed together on a display screen immediately adjacent each other. A general reference to an image rendering unit which may or may not apply a texture map to a displayed object does not disclose or suggest a plurality of texture tiles which represent plural respective views of the image texture displayed together on a display screen as recited in claim 1.

The Office Action characterizes Iwase as disclosing a plurality of texture tiles which represent plural respective views of the image texture displayed together on a display screen. Applicant respectfully disagrees with this characterization. The Office Action specifically cites Iwase, Col. 5, lines 7-27, which states in part that "a map

segment pattern P11 corresponding to a first positional range and a first line-of-sight directional range and a map segment pattern P21 corresponding to a second positional range and the first line-of-sight directional range are stored. ... When the vehicle position is in the first positional range and the player's line-of-sight is within the first line-of-sight directional range, the map segment pattern P11 is selected. The map that forms the game space is segmented in accordance with this map segment pattern P11. When the vehicle moves such that it enters the second positional range but the line-of-sight directional range remains unchanged, map segment pattern P21 is now selected." (Iwase, Col. 5, lines 5-24). Iwase describes segmenting the display space in accordance with a predetermined pattern based upon the line-of-sight and range of the vehicle operated by the player. Specifically, the segment pattern described by Iwase describes how the display should be segmented, and has nothing whatsoever to do with the rendering of the objects, much less the texture tiles to be mapped to the displayed object.

Assuming without agreeing that the segment patterns of Iwase are similar to texture tile data structures, the different patterns, e.g., P11 and P21, are not displayed together on a display screen immediately adjacent each other as recited in claim 1. More particularly, the map patterns P11 and P21 are displayed sequentially when the vehicle moves and the positional range changes, as specifically described in Iwase. (See Iwase, Col. 5, lines 17-24). Thus, claim 1 patentably distinguishes over Iwase such that the rejection under § 103 should be withdrawn.

Claims 3-7 and 9 depend from claim 1, and for at least the foregoing reasons are also patentable over Iwase.

Independent Claim 16

Iwase does not teach or suggest the features of claim 16 including, *inter alia*, a method of applying a texture map to an image surface comprising displaying the texture map tiles together at the adjacent regions on the computer display screen to form the texture map on the image surface. As noted above with respect to claim 1, Iwase does not teach or suggest applying a texture map to an image surface, and reliance on common knowledge to suggest that Iwase may be modified to include texture mapping is respectfully believed to render the rejection improper under M.P.E.P. § 2144.03. Thus,

Applicant respectfully suggests that the rejection of claim 16 under § 103 should be withdrawn.

Assuming without agreeing that texture mapping may be combined with the line objects of Iwase, this combination does not render Applicant's claim 16 obvious. Specifically, claim 16 recites, *inter alia*, identifying plural adjacent regions of the image surface to which regions the texture map is to be applied, determining a user viewing angle for each of the plural regions, and correlating each viewing angle with a texture tile corresponding to the viewing angle. Iwase does not teach or suggest determining a user viewing angle for each of the plural regions. As noted above, Iwase determines a single line-of-sight for each display frame. Thus, the line-of-sight angle is constant for all objects and/or segments within a particular displayed frame.

The Office Action suggests that the map patterns P11 and P21 of Iwase, described above with respect to claim 1, are plural regions to which the texture map is to be applied. Assuming without agreeing that this is true, this characterization still does not render Applicant's claim 16 obvious. Specifically, map patterns P11 and P21 of Iwase are not *displayed together*, as recited in claim 16. As noted above, Iwase specifically teaches that the pattern P11 is for a specific range and line-of-sight, and when the vehicle moves its range but retains its line-of-sight, the display segmentation changes to the pattern indicated by pattern P21. Thus, Iwase does not disclose or suggest the elements recited in claim 16, including determining a user viewing angle for each of the plural regions. Accordingly, claim 16 is not rendered obvious by Iwase and the rejection under § 103 should be withdrawn.

Claims 17 and 19 depend from claim 16 and are patentable for at least the foregoing reasons.

Independent Claim 27

Iwase does not teach or suggest the features of claim 27, as amended, including a method of generating a tile data structure representing an image texture for a tiled texture mapping comprising, *inter alia*, determining plural selected viewing angles for viewing together plural adjacent tiles of the image texture. As noted above with respect to claim 1, Applicant respectfully suggests that the rejection is improper under M.P.E.P. § 2144.03, since the Examiner appears to rely on common knowledge as the

principle evidence in rejecting Applicant's claim 27 directed towards tiled texture mapping. In addition, as noted above with respect to claim 16, Iwase merely determines a single line-of-sight angle for all objects within a particular display frame. Thus, Iwase does not teach or suggest determining plural viewing angles for viewing together adjacent tiles of the image texture. Moreover, assuming without agreeing that Iwase's segment patterns, e.g., P11 and P21, are plural tiles of an image texture, Iwase does not teach or suggest that these patterns are displayed together. Thus, claim 27 patentably distinguishes over Iwase such that the rejection under § 103 should be withdrawn.

Claims 28 and 30 depend from independent claim 27 and are also patentable for at least the foregoing reasons.

Independent Claim 34

Claim 34 recites, *inter alia*, software instructions for applying a texture map to an image surface in a graphics image comprising software instructions for displaying together the texture map tile at the region on the computer display screen and determining a viewing angle for each of the plural regions. As discussed above with respect to claim 1, Iwase does not teach or suggest any texture mapping. Thus, the rejection appears to be improper under M.P.E.P. § 2144.03, since the Examiner appears to rely on common knowledge to reject the principle basis of Applicant's claim 34 directed toward applying a texture map to an image surface. In addition, as noted above with respect to claim 16, Iwase merely determines a single line-of-sight for all objects within a particular display frame, and as such, does not teach or suggest determining a viewing angle for each of the plural regions as recited in claim 34. Moreover, assuming without agreeing that Iwase's segment patterns, e.g., P11 and P21, are plural texture tiles, Iwase does not teach or suggest that these patterns are displayed together. Accordingly, Applicant respectfully requests that the rejection of claim 34 under § 103 be withdrawn.

Claim 35 depends from independent claim 34, and is patentable for at least the foregoing reasons.

Independent Claim 43

Claim 43 recites, *inter alia*, identifying an array of regions of the image surface to which the texture map is to be applied, determining a projection viewing angle for each region of the array, and displaying a selected texture map tile at each region on the

computer display screen, the selected texture map tile corresponding to the determined projection viewing angle for the region. As discussed above with respect to claim 1, Iwase does not teach or suggest any texture mapping. Thus, the rejection appears to be improper under M.P.E.P. § 2144.03, since the Examiner appears to rely on common knowledge to reject the principle basis of Applicant's claim 43 directed toward applying a texture map to an image surface. In addition, as noted above with respect to claim 16, Iwase merely determines a single line-of-sight for all objects within a particular display frame, and as such, does not teach or suggest determining a projection viewing angle for each region of the array as recited in claim 43. Accordingly, Applicant respectfully requests that the rejection of claim 43 under § 103 be withdrawn.

Claims 44 and 45 depend from independent claim 43, and are patentable for at least the foregoing reasons.

Independent Claim 45

Claim 45 recites, *inter alia*, an array of plural tile data structures for displaying on a display screen, the plural data structures comprising a first tile data structure representing a first projection view of the image texture based upon a first viewing angle and a second tile data structure representing a second projection view of the image texture based upon a second viewing angle, the first viewing angle being different from the second viewing angle. As discussed above with respect to claim 1, Iwase does not teach or suggest any texture mapping. Thus, the rejection appears to be improper under M.P.E.P. § 2144.03, since the Examiner appears to rely on common knowledge to reject the principle basis of Applicant's claim 43 directed toward applying a texture map to an image surface.

Claim 46 depends from independent claim 45, and is patentable for at least the foregoing reasons.

Rejections under 35 U.S.C. § 103

Claims 2, 8, 10-12, 15, 18, 20-24, 26, 29, 31, 33, 36-37, 39, 44 and 46 stand rejected under 35 U.S.C. § 103 as being unpatentable over Iwase in view of U.S. Patent No. 6,049,337 to Van Overveld [hereinafter Van Overveld]. Applicant respectfully traverses the rejection as follows.

Initially, claims 2, 8, 10-12 and 15 depend from independent claim 1, and are patentable for at least the same reasons set forth above. Similarly, claims 18, 20-24, and 26 depend from independent claim 16 and are patentable for at least the same reasons set forth above. Claims 29, 31, and 33 depend from independent claim 27, and claims 36 and 39 depend from independent claim 34, and are patentable for at least the same reasons as set forth above. Claims 44 and 46 depend from independent claims 43 and 45, respectively, and are patentable for at least the same reasons as set forth above.

Independent Claim 37

Independent claim 37, as amended, recites, *inter alia*, software instructions for correlating each viewing angle with a texture map tile corresponding to the viewing angle, each texture map tile being based upon a predetermined tile structure and including an oblique parallel projection of the predetermined tile structure. As noted above with respect to claim 1, Iwase does not teach or suggest any texture mapping. Accordingly, the rejection is improper under M.P.E.P. § 2144.03, since the Examiner appears to rely on common knowledge to reject claim 37 directed towards texture map tiles.

Moreover, claim 37 recites software instructions for determining plural adjacent regions in a graphics image surface and determining a viewing angle for each of the plural regions. As noted above with respect to claim 16, Iwase merely determines a single line-of-sight for all objects within a particular display frame, and as such, does not teach or suggest determining a viewing angle for each of the plural regions as recited in claim 37.

Moreover, claim 37 recites that each texture map tile being based upon a predetermined tile structure and including an oblique parallel projection of the predetermined tile structure. Applicant agrees with the Examiner's assertion that Iwase does not teach or suggest employing a texture map tile including an oblique parallel projection. However, Applicant respectfully disagrees with the Examiner's

characterization that Van Overveld cures this deficiency in Iwase. Specifically, the Examiner points to the abstract in Van Overveld as stating that "Van Overveld discloses a method of simulating a texture image in which the view of the surface is parallaxically [sic]" and implies that this is equivalent to an oblique parallel project of an image texture. However, even a cursory reading of the abstract reveals that the term 'parallaxic' refers not to an oblique parallel projection, but rather to a parallax change in the appearance of a texture based on a change in the viewpoint. (See Van Overveld, Col. 4, lines 26-26).

Rather than rely on the teachings of the prior art of record, the rejection of claim 37 under § 103 appears to suggest the modification of the graphic images of Iwase in a manner that reconstructs Applicant's invention only with the benefit of hindsight. This is improper and fails to present a *prima facie* case of obviousness. Accordingly, Applicant respectfully request withdrawal of this rejection.

Claims 2, 24, and 29 have also been rejected based upon a similar mischaracterization of Van Overveld. Applicant also respectfully traverses these rejections under § 103 and requests the Examiner cite a reference to support this position or file an affidavit asserting facts within his personal knowledge.

Rejections under 35 U.S.C. § 103

Claim 13 stands rejected under 35 U.S.C. § 103 as being unpatentable over Iwase in view of U.S. Patent No. 6,054,999 to Strandberg [hereinafter Strandberg]. Applicant respectfully traverses the rejection as follows.

Claim 13 depends from independent claim 1, and is patentable for at least the same reasons set forth above. Moreover, claim 13 recites plural tile data structures representing plural respective views of the image texture, the image texture including an outer surface and the outer surface is of the same dimension in each of the plural respective views of the image texture. Examiner characterizes Figure 2 of Strandberg as illustrating segmented drawings which are representative of different positions within the sphere of a performance, e.g., different views of an animated character. Although Applicant agrees that Figure 2 of Strandberg illustrates different views of a rotated object, these plural views do not illustrate that the outer surface of the object has the same dimension in each of the plural views. Specifically, looking at the far right cells of the top two rows in the array of Figure 2, it is apparent that the surface of the hat does not

have the same dimension in each cell, and similarly, the shape of the ears and even the nose change as the perspective angle changes. Accordingly, Strandberg does not teach or suggest that the outer surface of the image texture has the same dimension in each of the plural respective views. One example maintaining the dimension of the outer surface in plural respective views, it with an oblique parallel projection, however, other projection and/or image rendering processes may be suitable.

Rejections under 35 U.S.C. § 103

Claims 14, 25, 32, and 38 stand rejected under 35 U.S.C. § 103 as being unpatentable over Iwase in view of U.S. Patent No. 5,995,119 to Cosatto [hereinafter Cosatto]. Applicant respectfully traverses the rejection as follows.

Claims 14, 25, 32, and 38 depend from independent claims 1, 16, 27 and 34 respectively, and are patentable for at least the same reasons set forth above.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, please charge any deficiency to **Deposit Account No. 50-0463**.

Respectfully submitted,
Drucker et al., Applicant

By: *Carole A. Boelitz*
Carole A. Boelitz
Reg. No. 48,958
Microsoft Corporation
Redmond, Washington
Telephone (425) 722-6035

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